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        *           W E L C O M E   T O   T H E             *
        *        U. S.  P A T E N T  T E X T  F I L E        *
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=> s saw and computing and (curve or curved) and control? and (workpiece or
log or cant)

          30932 SAW
          43778 COMPUTING
         195296 CURVE
         215265 CURVED
        1256867 CONTROL?
          44884 WORKPIECE
          39610 LOG
           2992 CANT
L1           41 SAW AND COMPUTING AND (CURVE OR CURVED) AND CONTROL? AND (W
ORK
                PIECE OR LOG OR CANT)

=> s l1 and 364/clas

          56668 364/CLAS
L2           12 L1 AND 364/CLAS

=> s l1 and 250/clas

          60852 250/CLAS
L3            1 L1 AND 250/CLAS

=> s l1 and 144/clas

          25408 144/CLAS
L4            5 L1 AND 144/CLAS

=> s l1 and chip? and (bandsaw or gangsaw)

         130779 CHIP?
            364 BANDSAW
              9 GANGSAW
L5            0 L1 AND CHIP? AND (BANDSAW OR GANGSAW)

=> s l1 and gangsaw

              9 GANGSAW
L6            0 L1 AND GANGSAW

=> s l1 and bandsaw

            364 BANDSAW
L7            0 L1 AND BANDSAW

=>

=> s l1 and gang(w)saw
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          3986 GANG
         30932 SAW
           121 GANG(W)SAW
L8           1 L1 AND GANG(W)SAW

=> s 11 ans band(w)saw

MISSING OPERATOR 'L1 ANS'

=> s 11 and band(w)saw

        189667 BAND
         30932 SAW
          1364 BAND(W)SAW
L9           3 L1 AND BAND(W)SAW

=> d 11, 1-41 ab
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ABSTRACT:
Source code to be protected, a software application writer's private key,
along with an application writer's license provided to the first
computer. The application writer's license includes identifying
information such as the application writer's name as well as the
application writer's public key. A compiler program executed by the first
computer compiles the source code into binary code, and computes a
message digest for the binary code. The first computer then encrypts the
message digest using the application writer's private key, such that the
encrypted message digest is defined as a digital "signature" of the
application writer. A software passport is then generated which includes
the application writer's digital signature, the application writer's
license and the binary code. The software passport is then distributed to
a user using any number of software distribution models known in the
industry. A user, upon receipt of the software passport, loads the
passport into a computer which determines whether the software passport
includes the application writer's license and digital signature. In the
event that the software passport does not include the application
writer's license, or the application writer's digital signature, then the
user's computer system discards the software passport and does not
execute the binary code. As an additional security step, the user's
computer computes a second message digest for the software passport and
compares it to the first message digest, such that if the first and
second message digests are not equal, the software passport is also
rejected by the user's computer and the code is not executed. If the
first and second message digests are equal, the user's computer extracts
the application writer's public key from the application writer's license
for verification. The application writer's digital signature is decrypted
using the application writer's public key. The user's computer then
compares a message digest of the binary code to be executed, with the
decrypted application writer's digital signature, such that if they are
equal, the user's computer executes the binary code.

ABSTRACT:
Apparatus for detecting dimensional information of a **workpiece** such
as a canted **log** is used to **control** a gang **saw** mounted on a
pivot axis to cut the **log** into substantially even thickness boards
while moving the **log** past the cutting device and pivoting the gang
saw to accommodate curvature in the **log**.

ABSTRACT:
The invention provides an easy-to-use method of containing consistent
growth and yield values at varying levels of resolution (stand,
size-class) for loblolly pine plantations in the southern United States.
The invention is able to make projections of estimated values using
either existing stand data, or predicted from bare-ground conditions. The
invention evaluates stand performance based on estimates of potential or
"target" productivity yields. The invention provides long-term expected
yields for strategic planning, and short term projections for inventory
purposes. The invention can function as a simulation tool to provide
insights into the life-cycle of a stand under varying initial conditions.
While most growth and yield models use an empirical, multiple regression,
"best fits to the data" modelling methodology, the present invention is
based upon a biomathematical modelling concept.

US PAT NO: 5,689,431 [IMAGE AVAILABLE]   L1: 4 of 41

ABSTRACT:
A player position determining and course management system for a golf
course having a plurality of roving units for use by players in playing
the course is disclosed. Each roving unit includes a central processing
unit (CPU) including a data processor for executing various tasks ranging
from fastest execution of a task to slowest execution of a task on a
schedule of priorities of task completion, a real-time means for
controlling the processor to give the tasks priority ranging from
fastest execution of a task with highest priority to slowest execution of
a task with lowest priority, and a means for precisely timing functions
of the system including modulating means utilizing a common digital
modulation technique for digitally modulating data transmitted to and
from all of the roving units. Each of the roving units include a monitor
for displaying the golf course including each of the holes with its tee
box, fairway, green, cup and hazards, as well as the position of the
roving unit on the course in real time. Additionally, the system includes
a course management base station for transmitting and receiving
information to the roving units and a monitor for displaying the the
location of each roving unit on the golf course in real time.

US PAT NO: 5,683,243 [IMAGE AVAILABLE]   L1: 5 of 41

ABSTRACT:
An apparatus for automatically designing and manufacturing a custom
orthodontic appliance from anatomical shape data preferably of the lower
jaw and teeth of a patient includes a scanner to produce images in three
dimensions, a computer that constructs archforms and calculates finish
tooth positions, then automatically designs an appliance, preferably
including archwires and brackets, to move the teeth to the calculated
positions and jigs to place the brackets on the teeth of the patient, and
program **controlled** machines for making the brackets, wires and jigs
to the appliance design driven by commands derived from digitized tooth
and jaw shape data.

US PAT NO: 5,615,003 [IMAGE AVAILABLE]   L1: 6 of 41

ABSTRACT:
A system for determining the shape and dimensions of a surface of an
object includes a projector for projecting onto the object a spatially
coded pattern of radiation, e.g., light. The system also includes a
receiving device capable of imaging the reflected pattern, and a
discriminator for determining which portion of the reflected pattern
corresponds to which portion of the projected pattern. By this means, a
received signal representing less than the complete reflection from the
projected pattern can be correlated with a discrete portion of the
scanned object. The procedure is repeated to obtain enough reliable data
to generate a reasonably reliable surface profile. The resulting set of

received signals and correlations are used to calculate the shape and dimensions of the object.

ABSTRACT:
An audio navigation system incorporating an audio CD player for playing an audio format CD constituting a data storage medium for the navigation system. The CD may store a database containing map data and navigation information, software including an algorithm for selecting a desired route between a designated starting point and destination, and speech data for generating audible spoken statements through a sound system. The audio CD player may be part of a sound system and may also play audio CDs carrying musical selections.

ABSTRACT:
For use with a quartz angular rate sensor, a frequency and phase-locked synthesizer recovers a reference signal virtually free of phase noise, and generates a quadrature-phase reference signal for complex demodulation of the angular rate signal. The synthesizer also ensures a precisely adjusted phase shift of approximately zero across the drive tines of the sensor. Moreover, the digital synthesizer provides a precise numerical indication of the drive frequency, which can be used for compensation and automatic tuning of filters, such as a tracking filter, a filter in an automatic gain control, and notch filters in the phase and/or frequency detectors in the digital synthesizer. The tracking filter is used as a pre-filter for the synthesizer, and is responsive to a passband-width control signal generated from the magnitude of the frequency and phase error signal controlling the frequency generated by the synthesizer. Preferably the synthesizer has an oscillator controller for producing a pair of frequency control signals that are the sine and cosine of a frequency control parameter (.phi.), and one of these control signals is generated from the other by a polynomial approximation. To compensate for roundoff error, when one of the in-phase or quadrature-phase outputs has a magnitude less than a limit value, a compensated value for the other output is computed from an even polynomial of the magnitude.

ABSTRACT:
The invention is a method of determining the thickness of a casing in a wellbore penetrating an earth formation using group delay determined casing resonance extracted from processed reflection signals from an acoustic pulse-echo imaging tool. A first Fourier transform coefficient series is calculated from the digitized reflection signal. Individual samples of the reflection signal are multiplied by their sample index values to obtain a modified digitized data string. A second Fourier transform coefficient series is calculated from the modified digitized data. The complex group delay function is calculated directly from the first and second Fourier coefficient series.

ABSTRACT:
An improved transform processing system reduces processing bandwidth with improved processor architectures and improved transform algorithms. A hierarchal arrangement facilitates use of the same coefficients for multiple transforms, particularly when the coefficients have not changed. A detector arrangement is provided for detecting a change condition and then causing the processor to bypass redundant processing operations.

ABSTRACT:
Custom orthodontic brackets are provided for supporting an orthodontic archwire at custom positions and inclinations on the teeth of a patient. The preferred brackets each include a bracket base mountable on a tooth and a support extending therefrom for supporting an archwire, preferably in a slot of the custom inclination, depth and preferably curvature with respect to the mounting surface of the bracket base to the tooth. In the preferred embodiment, the brackets are formed by mounting blanks on an inclinable holder, positioning a cutter blade and inclining the holder to cut a custom slot in an archwire plane through the support on the bracket. The cutting tool and bracket holder are computer **controlled** and driven by signals produced from digitized data relating to the individual patient's anatomy, and preferably to tooth finish positions and bracket and archwire geometry calculated from digitized data taken from the patient's mouth or model thereof.

US PAT NO: 5,447,432 [IMAGE AVAILABLE]   L1: 12 of 41

ABSTRACT:
A custom orthodontic appliance, preferably including an archwire, is automatically formed into an arcuate shape optimized to the anatomy of the patient to move the teeth to desired finish positions on a desired dental archform. Data, digitized of anatomical shapes, preferably of individual teeth and the lower jaw bone, is processed with data of the desired tooth positions and archform, which are preferably calculated from the digitized anatomical shape data, to design an optimized arcuate appliance. Preferably, an archwire is automatically designed along with optimized custom brackets to minimize bracket profiles and the changes in curvature of the wire, which is preferably in the form of a series of circle segments, embodied in machine **control** instructions carried by a **control** signal to a numerically **controlled** wire feeding and bending machine.

US PAT NO: 5,431,562 [IMAGE AVAILABLE]   L1: 13 of 41

ABSTRACT:
A system and method by which an orthodontic appliance is automatically designed and manufactured from digital lower jaw and tooth shape data of a patient provides for preferably scanning a model of the patient's mouth to produce two or three dimensional images and digitizing contours and selected points. A computer is programmed to construct archforms and calculate finish positions of the teeth, then to design an appliance, preferably including archwires and brackets, to move the teeth to the calculated positions. The lower teeth are positioned at their roots on an arch defined by the lower jaw bone, and the arch is modified to best fit the tooth tips on a smooth **curve**. Then upper archforms are constructed for the upper teeth. Crown long axes of the teeth are derived and preserved in the treatment which places all lower teeth but the cuspids in a plane and fits the occluding teeth to them. Overlaps for the upper incisors and for cuspid rise are calculated.

US PAT NO: 5,368,478 [IMAGE AVAILABLE]   L1: 14 of 41

ABSTRACT:
Orthodontic appliance placement jigs are provided positioning and orienting the appliance at connection points on the teeth of a patient, particularly for positioning brackets against the surfaces of the teeth so that they can be bonded thereto. The jigs are each provided with a surface conforming to the contour of the tooth to which they are to be mounted. Another surface of the jig engages the bracket to hold it in the proper position and orientation for mounting to the tooth and spaced in relation to the contour surface to precisely locate the jig on the tooth. The jigs are particularly useful in positioning brackets of custom appliances designed to the individual anatomy of the patient, and

requiring custom positioning of the brackets on the teeth. The jigs are formed with numerical **controlled** machinery that develops jig forming instructions from digitized tooth shape data and from digital representations of the tooth finish positions and appliance design. The jig forming instructions are preferably derived from the same data and digital information from which the tooth finish positions and custom appliance geometry are calculated.

US PAT NO: 5,347,286 [IMAGE AVAILABLE]

ABSTRACT:
An embodiment of the present invention is a system for automatically pointing a directional antenna. The system comprises two GPS antennas mounted at horizontally opposed extremities of the directional antenna, the placement is such that the GPS antennas lie on a line having a normal vector approximately parallel to a boresight of the directional antenna. The outputs from the GPS antennas are downconverted to a measurement frequency and differentially phase compared for each of a plurality of radio visible GPS satellites. A measurement **controller** that receives the phase comparisons. A navigation computer receives measurements from the measurement **controller** and uses a microprocessor to calculate the GPS latitude and longitude and the attitude angles of the pair of GPS antennas. A servo points the directional antenna at a particular target communications satellite, based on the computed azimuth, elevation, latitude, and longitude, as provided by the navigation computer. One of these servos is used to move the GPS antennas in roughly a circle to average out multipath effects to improve accuracy and to reduce integer ambiguities.

US PAT NO: 5,274,560 [IMAGE AVAILABLE]

ABSTRACT:
An audio navigation system including an artificial intelligence routing algorithm which does not require any internal or external sensors to locate the vehicle. The interface with the driver is via voice input and voice output and is therefor visually non-distracting and safe to use when the vehicle is in motion. The hardware is built around an optical disk player and therefor can be used for entertainment as well as navigation functions. Digitized maps, compressed voice records and the computer programs are stored on an optical disk.

US PAT NO: 5,243,888 [IMAGE AVAILABLE]

ABSTRACT:
A pivoting carriage and **saw** which is characterized in a preferred embodiment by a carriage capable of receiving **curved** logs and pivotally mounted on a linear-operated trolley for engaging the logs with a pivoting band **saw** and cutting a selected non-linear path through the **curved** logs. In a most preferred embodiment the band **saw** is pivotally mounted adjacent to the trolley carriage and **log** and a computerized **control** system is coupled to fluid-operated cylinders mounted on **log**-adjusting knees on the carriage and on other fluid-operated cylinders provided on the carriage itself and on the band **saw** and used to select and **control** desired cutting paths through the logs.

US PAT NO: 5,023,805 [IMAGE AVAILABLE]

ABSTRACT:
A method of analyzing a body (**log**) containing elements (e.g. knots) having different densities than the remainder of the body by passing electromagnetic energy from at least one source for substantially symmetrical bodies (pruned logs) or at least two sources through the body and sensing the amount of energy passing through the body from each source by sensors mounted opposite each source. Each sensor is formed by

an array of discrete detectors positioned in side by side relationship opposite their respective sources. The amount of radiation passing through the body is detected as the body passes between the source(s) and its (their) respective detector(s) and a longitudinal plan is generated based on the radiation detected from each of the sensors over at least a preselected length of the body. For non-symmetrical bodies the longitudinal plans are then analyzed to identify the same element in each of the plans and then the body is reconstructed in a plurality of cross sections representing discrete lengths of the body shorter than the selected length with the detected elements positioned in the cross section.

A longitudinal axis of the body is selected based on the shape of the body and the plurality of the cross sections are collapsed along lines parallel to the selected longitudinal axis to provide an accumulation of the overlying elements along the axis in a single cross section representative of the length of body being collapsed. This system provides a means for a real time analysis of a body such as a **log** to determine the location of defects and generate a rotation decision for rotating the **log** for presentation to the headrig to permit the optimization of a sawing solution for the **log**. The system may also be used to determine a bucking solution to select the length of the **log** for which the sawing solution is determined.

ABSTRACT:
Described herein are an apparatus and range of techniques used to study the retinal vasculature near the fovea, a description of the need and rationale for noninvasive in vivo monitoring of the retinal vasculature, a presentation of theoretical and practical considerations which demonstrate that entoptic visualization of the smallest capillaries near the fovea is optimized by a small short wavelength source (1 mm or less) rotating at 3.5 Hz in a circular path (radius 2 mm) imaged in the plane of the eye's entrance pupil and a discussion of the feasibility of using these techniques as a rese

Research relating to the development of the present invention was supported in part by grants from the United States Department of Health and Human Services (NIH EY08005 and EY07638). The United States government may have corresponding rights to the license and use of any resulting patent.

ABSTRACT:
A system is disclosed for selecting a band **saw** blade for a particular product to be cut on a selected band **saw**. Specifically, a schedule of predetermined parameters for operating most known types of band saws is entered into a microprocessor. The identity of the specific band **saw** and product to be cut it also entered. The microprocessor provides recommendations as to the optimum band **saw** blade for cutting the product. An additional feature of the invention is a system for providing a cost per-piece analysis of the product being cut, using both the present blade and the recommended blade. Further, a library of band **saw** problems and their recommend solution is provided. Finally, a product cross-reference schedule is provided in order to identify appropriate blades for a plurality of band **saw** brands.

ABSTRACT:
A system for processing a **log** or **cant** including chippers, profiling heads, and saws arranged as a sequence of coupled operations. Scanners and computers determine the **log** configuration and projected configuration of lumber pieces to be derived. One scanning function is

the determination of the wane area configuration in the region of the projected side board edges. This enables a determination of the side board edges including acceptacle wane area and the desired orientation (incline or decline) of the boards relative to the path of conveyance. The profiling heads are adjustable in response to computer calculations to edge the established side boards. Stabilizing is provided and includes guide anvils positioned at the board edges following the edging operation.

US PAT NO: 4,858,980 [IMAGE AVAILABLE]

ABSTRACT:
An article gripper with a fixed jaw has a movable jaw mounted on reed springs. Deflection of the movable jaw permits the article to enter and exit the gripper. The movable jaw has an inlet cam surface and an outlet cam surface, configured so that a low-level inlet force deflects the jaw and reeds laterally, while a higher-level outlet, or removal, force is directed parallel to the reed springs causing the jaw to behave stiffly and thus resist pullout of the article.

US PAT NO: 4,851,825 [IMAGE AVAILABLE]

ABSTRACT:
A method and system for efficiently generating grayscale character fonts from bi-level master character fonts decomposed into rectangles. For each filter array to be used for converting master character fonts into grayscale characters there is generated at least one summed area filter array. Each element in each summed area filter array represents the sum of the filter array elements in a corresponding subarray of the filter array. A grayscale character is generated by performing, for each rectangle in the corresponding decomposed master character, the steps of:
 specifying a filter array, and its corresponding summed area filter
   arrays;
 determining the pixels in the grayscale character affected by the
   rectangle and a set of corresponding sampling points located inside and
   near the rectangle;
 for each grayscale character pixel affected by the rectangle, performing
   the steps of:
   assigning the pixel a predefined value corresponding to a black pixel
    if the corresponding sampling point is located inside the rectangle,
    and is offset from the perimeter of the rectangle by at least one half
    of the extent of the filter's support; and otherwise
   adding to the value of the grayscale pixel a value from the summed area
    filter array corresponding to the intersection of the selected filter
    array, centered at the sampling point corresponding to the grayscale
    pixel, and the rectangle.

US PAT NO: 4,794,775 [IMAGE AVAILABLE]

ABSTRACT:
A method for producing a heat transfer tube for single-phase flow having rows of discontinuous projections formed on the inner surface thereof along one or more spiral curves. Each projection has a circular, elliptic or a similar cross-section constituted by smooth curves at any desired height including the bottom thereof. The cross-sectional area of the projection progressively decreases towards the top of the projection.

US PAT NO: 4,792,914 [IMAGE AVAILABLE]

ABSTRACT:
A high frequency digital synthesizer is provided with aperiodic correction optimizing the spectral plurity, including:
 a generator of reference clock signals of frequency $F.sub.C$,
 a computing device, which, from a frequency increment of the signal
   to be synthesized, delivers, on the one hand, uncorrected pulses of

frequency F.sub.Sj shifted in the time with respect to the signal of frequency F.sub.S to be synthesized by an amount .DELTA.t at most equal to 1/F and, on the other hand, a time error signal corresponding to the shift .DELTA.t and a correction circuit which is initiated by each of the frequency pulses F.sub.Sj for delaying the signal F.sub.Sj by a maximum time when the time error signal is zero by an amount equal to the maximum time reduced by the shift .DELTA.t indicated by the time error signal.

US PAT NO: 4,728,958 [IMAGE AVAILABLE]   L1: 26 of 41

ABSTRACT:
An emitter location system includes a single carrier based first and second short baseline interferometers, and a long baseline interferometer operatively connected to a **computing** means. The **computing** means includes a three level processor. The short baseline interferometers provide phase measurements for level one combination into total phase measurements and estimates of the angle of incidence of the incoming electromagnetic energy. After test for acceptance, the estimated angle of incidence is passed for level two processing which includes the simultaneous processing of the estimated incident angle with the phase measurement of the long baseline interferometer for error correction to provide an improved estimated incident angle. After test for acceptance, the improved angle of incidence measurement is passed for determining the angle of the incident wave for level three processing. Level three processing utilizes the bearing estimates and the carrier position and heading information for an inertial navigation system to relate the information to a fixed coordinate system. Then the location of the emitter is determined using least square method.

US PAT NO: 4,691,751 [IMAGE AVAILABLE]   L1: 27 of 41

ABSTRACT:
The present invention relates to a method for sawing a tree trunk and for treating a slice of wood of uniform thickness sawn off the trunk. In the first method, the trunk dimensions and shape as well as the biological quality of each section of the trunk both in the lengthwise and the crosswise direction are defined along with the sawing process, and this information is taken into account while treating the trunk. This method is characterized in that the production programme, which comprises various articles, i.e. product components, of different measures and qualities, is recorded (a) before the actual sawing process. The trunk is sawn into two halves in the middle (b), or the heart slice is removed therefrom (i). The longitudinal quality borders of each trunk half are defined on the basis of the sawn face and recorded (c), and further the shape and size of the trunk half are measured and recorded (d). The quality information and the measuring results are combined (e). The cross-cutting lines and the sawing patterns of the trunk halves are optimized on the basis of the measuring results and the quality information so that each trunk half is divided, in the lengthwise direction, into sections, each section in principle belonging to the same quality grade, and that into each section there are fitted suitable product components from the production programme and the value yield is maximized (f), whereafter the trunk halves are cross-cut and slices of desired sized are sawn off the halves, which slices are further sawn into suitable product components (g) and sorted out (l).

US PAT NO: 4,690,211 [IMAGE AVAILABLE]   L1: 28 of 41

ABSTRACT:
A heat transfer tube for single-phase flow having rows of discontinuous projections formed on the inner surface thereof along one or more spiral curves. Each projection has a circular, elliptic or a similar cross-section constituted by smooth curves at any desired height including the bottom thereof. The cross-sectional area of the projection

progessively decreases towards the top of the projection.

US PAT NO: 4,638,456 [IMAGE AVAILABLE]

ABSTRACT:
Describes a method and system for improving the ability to quantitate the amount of flux or material in localized collections of such flux or material typically called a "spot". Quantitation of spots using a software algorithm which utilizes reduction volumes for quantitating peaks in a spot image of an electrophoresis gel is disclosed. The operating system includes a laser gel scanner module, a computer module, system peripherals, and analysis software.

US PAT NO: 4,628,459 [IMAGE AVAILABLE]

ABSTRACT:
A circuit arrangement including a computer is built in an electrical jig saw where various data or information, such as the sort of the material of the workpiece, the thickness of the workpiece, desired degree of finish and way of cutting, are manually inputted via a keyboard so that the computer selects and determines optimum working condition, such as the sort of blade to be used, the locus of the blade, blade strokes per minute which is in proportion to the motor speed, and the necessity of application of coolant oil. The circuit arrangement also comprises circuitry for automatically controlling the rotational speed of the motor of the jig saw so that an actual speed of the blade equals a desired speed represented by strokes per minute. A display unit is coupled with the computer for indicating input and output data of the computer for supplying visual information to the user of the jig saw.

US PAT NO: 4,618,937 [IMAGE AVAILABLE]

ABSTRACT:
Describes a method and system for improving the ability to quantitate the amount of flux or material in localized collections of such flux or material typically called a "spot". Quantitation of spots using a software algorithm which utilizes models in two opposite senses for quantitating peaks in a spot image of an electrophoresis gel is disclosed. The operating system includes a laser gel scanner module, a computer module, system peripherals, and analysis software.

US PAT NO: 4,547,847 [IMAGE AVAILABLE]

ABSTRACT:
An adaptive control for a turning machine which adjusts the machining rate to maintain the actual horsepower dissipated at the cutter tip at a constant set point despite changing workpiece and cutter parameters. The machining rate is adjusted by control of the machine drive and tool feed to achieve required SFM and IPR values, respectively, within maximum and minimum SFM and IPR limits. "Speed" and "Axis" override controls are also provided. The rate of adjustment of SFM and IPR to a deviation of the cutter tip horsepower from the set point is inversely proportional to the measured system gain so that the response factor of the control loop is maximized. The commanded machining rate of (SFM) (IPR) product is periodically determined by estimating the actual machining rate and multiplying the estimate by the ratio of the set point to the cutter tip horsepower. The cutter tip horsepower is determined by subtracting the electrical loss, mechanical friction loss, and the net power required for net acceleration of the drive, from the measured electrical power supplied to the drive motor. The cutting efficiency is monitored to perform tool wear, tool breakage, and tool protection functions. The adaptive control also has soft engagement and soft disengagement functions for initiating and terminating the adaptive machining process.

ABSTRACT:
An adaptive **control** for a turning machine which adjusts the machining
rate to maintain the actual horsepower dissipated at the cutter tip at a
constant set point despite changing **workpiece** and cutter parameters.
The machining rate is adjusted by **control** of the machine drive and
tool feed to achieve required SFM and IPR values, respectively, within
maximum and minimum SFM and IPR limits. "Speed" and "Axis" override
controls are also provided. The rate of adjustment of SFM and IPR to
a deviation of the cutter tip horsepower from the set point is inversely
proportional to the measured system gain so that the response factor of
the **control** loop is maximized. The cutter tip horsepower is
determined by subtracting the electrical loss, mechanical friction loss,
and the net power required for net acceleration of the drive, from the
measured electrical power supplied to the drive motor. The cutting
efficiency is monitored to perform tool wear, tool breakage, and tool
protection functions. The adaptive **control** also has soft engagement
and soft disengagement functions for initiating and terminating the
adaptive machining process.

ABSTRACT:
Various aspects of electro-magnetic testing are facilitated by inserting
a foamed plastic dielectric lens at a particular position between a
particular radiating source and the test aperture. The lens is
constructed according to electro-optic formulae and the radiation
wavelength to produce a plane wave of uniform phase. To **control**
extraneous energy contributed by reflections from the flat face of the
lens, this surface is provided with two layers of high-performance
absorber material. The amplitude characteristics in the test region are
controlled by appropriate selection of the source antenna.
Radiation-absorbent material is also provided to eliminate amplitude
distortion. This makes possible testing under far-field conditions in
test cells of modest size, which has heretofore been possible only with
elaborate parabolic reflectors. Weather restrictions on use of free-space
ranges, the sheer size of such ranges, and security problems attendant on
their use, are all thus avoided. The lens can be manufactured from any
plastic having a suitable dielectric constant, by either blowing the
plastic in a suitable mold, or by machining from a preformed foam block.
The absorber layers are loaded with conductive carbon to provide desired
insertion loss and attached to the flat face.

ABSTRACT:
Strictly translatory substantially lengthwise horizontal motion is
imparted to an elongated **workpiece** such as a **cant** having top and
bottom face surfaces, at least one of which is flat, to feed the
workpiece from an orienting station towards a trimming station at
which straight, parallel longitudinal side surfaces are formed on the
workpiece that are perpendicular to said flat face surface. For such
translatory motion, driving dogs engage one face surface at
longitudinally spaced portions of a narrow zone thereof which is spaced
substantially equal distances from its longitudinal edges; the driving
dogs are confined to linear motion in the feed direction; and the other
face surface is engaged by horizontal freely revolving rollers extending
transversely to the feed direction at intervals therealong. At the
orienting station the oriented **workpiece** is clampwise engaged by the
rollers and dogs by effecting relative vertically converging motion
between them.

the drum. Internal electronic means are disposed within the sealed housing and coordinate the energizing of the light emitting diodes responsive to acoustical signals received by the receiving transducers. External electronic means are disposed exteriorly of the housing and energize the electric drive means and cooperate with the internal electronic means.

US PAT NO: 3,887,903 [IMAGE AVAILABLE]

ABSTRACT:
The specification discloses a technique for laying out an apparel pattern marker by efficiently arranging a plurality of apparel pattern pieces within a predetermined marker area. The system includes a digitizer for inputting digital coordinate data representative of a plurality of apparel pattern pieces. A central **controller** receives and stores the coordinate data and upon command, applies predetermined grading rules to the pattern pieces. The graded pattern pieces may be displayed upon a cathode ray tube display and checked by the operator. To produce a pattern marker, the operator faces the cathode ray tube display on which is displayed miniature representations of the marker area and the pieces comprising the desired style and sizes. The operator manually operates a stylus on a data tablet which is interconnected with the central **controller** and the cathode ray tube display. The operator further operates a multi-button function box in conjunction with movement of the stylus, in order to arrange the piece reproductions within the marker area on the cathode ray tube. When the desired miniature marker layout has been produced on the cathode ray tube display, the operator may cause the full sized apparel pattern marker to be automatically plotted. The pattern marker may then be utilized to cut cloth to enable the fabrication of a large number of garments of the desired style and sizes.

US PAT NO: 3,842,661 [IMAGE AVAILABLE]

ABSTRACT:
A shock spectrum analysis and synthesis method and apparatus which includes the use of a shock spectrum analyzer and a shock spectrum synthesizer. The analyzer is a special purpose analog computer which provides an automatic shock spectrum analysis of both the primary and residual spectrum by solving the equation of motion for a single degree of freedom, mass-spring-damping system and displaying the output signals on an oscilloscope or X-Y recorder. The synthesizer generates a variable transient electrical input to a vibration shaker system by generating a plurality of steady state signals each having a different frequency and gating and summing the signals.

US PAT NO: 3,733,555 [IMAGE AVAILABLE]

ABSTRACT:
A shock spectrum analysis and synthesis method and apparatus which includes the use of a shock spectrum analyzer and a shock spectrum synthesizer. The spectrum analysis provides an automatic simultaneous shock spectrum analysis of both the primary and residual spectrum responses for a plurality of single-degree-of-freedom, mass-spring-damping systems of a plurality of natural frequencies and displaying the output signals on an oscilloscope or X-Y recorder. The synthesis comprises generating a variable transient electrical input to a vibration shaker system by generating a plurality of steady state signals each having a different frequency. A predetermined number of the lowest frequency waves are summed and then the remaining oscillating waves are sequentially gated in an order corresponding to the higher frequencies first. Then all the waves are summed to produce the desired transient.

US PAT NO: 3,659,456 [IMAGE AVAILABLE]

ABSTRACT:

A shock spectrum analysis and synthesis method and apparatus which includes the use of a shock spectrum analyzer and a shock spectrum synthesizer. The analyzer is a special purpose analog computer which provides an automatic shock spectrum analysis of both the primary and residual spectrum by solving the equation of motion for a single degree of freedom, mass-spring-damping system and displaying the output signals on an oscilloscope or X-Y recorder. The synthesizer generates a variable transient electrical input to a vibration shaker system by generating a plurality of steady-state signals each having a different frequency and gating and summing the signals.

US PAT NO: 3,615,479 [IMAGE AVAILABLE]

ABSTRACT:
Selective region development of photographic film is made by relating density of the photographic emulsion with the intensity of an infrared beam directed onto the emulsion and by **controlling** the intensity as a function of the density. Apparatus for carrying out the method is provided.

=> d 11, 1-41, cit

1. 5,724,425, Mar. 3, 1998, Method and apparatus for enhancing software security and distributing software; Sheue-Ling Chang, et al., 380/25, 4, 23, 30, 49, 50 [IMAGE AVAILABLE]

2. 5,722,474, Mar. 3, 1998, Method and apparatus for cutting a **cant** into boards; Christopher Raybon, et al., 144/357; 83/368; 144/3.1, 39, 250.23, 378 [IMAGE AVAILABLE]

3. 5,719,795, Feb. 17, 1998, Method to provide consistent estimated growth and yield values for loblolly pine plantations; Neal E. Menkus, et al., 364/578 [IMAGE AVAILABLE]

4. 5,689,431, Nov. 18, 1997, Golf course yardage and information system; Richard W. Rudow, et al., 701/213; 340/990, 995; 342/457; 701/208, 215, 300 [IMAGE AVAILABLE]

5. 5,683,243, Nov. 4, 1997, Custom orthodontic appliance forming apparatus; Craig A. Andreiko, et al., 433/3, 24 [IMAGE AVAILABLE]

6. 5,615,003, Mar. 25, 1997, Electromagnetic profile scanner; Alexander T. Hermary, et al., 356/3.03; 250/559.23; 356/376; 382/106 [IMAGE AVAILABLE]

7. 5,592,389, Jan. 7, 1997, Navigation system utilizing audio CD player for data storage; Charles La Rue, et al., 701/211; 340/988, 990, 995 [IMAGE AVAILABLE]

8. 5,577,073, Nov. 19, 1996, Frequency and phase-locked two-phase digital synthesizer; Stanley A. White, 375/324; 331/31; 375/327, 376 [IMAGE AVAILABLE]

9. 5,491,668, Feb. 13, 1996, Method for determining the thickness of a casing in a wellbore by signal processing pulse-echo data from an acoustic pulse-echo imaging tool; John F. Priest, 367/35; 181/105; 367/28 [IMAGE AVAILABLE]

10. 5,487,172, Jan. 23, 1996, Transform processor system having reduced processing bandwith; Gilbert P. Hyatt, 395/800.32; 364/137, DIG.1, DIG.2 [IMAGE AVAILABLE]

11. 5,454,717, Oct. 3, 1995, Custom orthodontic brackets and bracket forming method and apparatus; Craig A. Andreiko, et al., 433/24 [IMAGE

ABSTRACT:
An integrated closed ultrasonic scanner having a sealed housing provided with an acoustically conductive liquid disposed therein. Means are provided within the housing to receive acoustical waves and convert the same to electrical signals. Non-contacting commutation means may be provided. These signals may be electrical signals which are converted to convenient data display format, such as a video output, may be in the form of a direct visual output as by light emitting diode arrays or other suitable means. The integrated scanner is adapted to be relatively lightweight such that a user may readily operate the instrument while holding it within one hand.

In one embodiment an endless belt is provided within the housing and adapted for orbital movement therewithin. Piezoelectric transducers are secured to the exterior of the endless belt and drive means disposed within the housing are provided for establishing the desired orbital movement. Non-contacting commutation means energize the transducers and transfer reflected transducer signals toward the exterior of the sealed housing. A flexible fresnel deflecting lens is disposed between the endless belt and a mechanically compliant wall of the sealed housing. Means for reciprocating the fresnel lens in a direction generally perpendicular to the direction of the orbiting transducers is provided. This results in a rapid mechanically reliable B-scan type of reading. The endless belt may be mounted upon a pair of rotatable pulleys which may serve as the armatures of electric motors disposed within the sealed housing. Internal signal handling means disposed within the housing may communicate with external signal processing means through electrical cable means.

In another embodiment the sealed housing which contains an acoustically conductive liquid is provided with an endless belt mounted for orbital movement in a first direction and translational movement in a second direction. At least one transducer and one light emitting diode are secured to the exterior of the belt. Drive means disposed within the sealed housing drive the endless belt in the orbital first direction and translational second direction. Magnetic commutation means commutate acoustical signals received by the transducer, and additional commutation means energize the light emitting diode. Electrical cable means are operatively associated with the drive means and in communication with the exterior of the sealed housing.

In another embodiment of the invention a sealed housing may have a subdivided interior or have two chambers within which an acoustically conductive liquid is disposed. A rotatable drum is disposed within the first chamber. At least two rows of transducers are disposed on the circumference of the drum generally aligned with the central axis thereof with the rows spaced circumferentially from each other. At least two rows of light emitting diodes are disposed on the circumference of the drum generally aligned with the central axis of the drum. Electric drive means are provided for rotating the drum. An array of sound pipes having a generally **curved** surface adjacent the drum and a generally flat surface at the other end or receiving end thereof is provided. A wall of the sealed housing is preferably flexible so as to permit more intimate contact between a test specimen and the sound pipe array either directly or through an acoustical coupling medium. Acoustical waves impinging upon the flat surface of the sound pipe array will be transmitted to the drum transducers through the **curved** surfaces.

Another embodiment of the invention involves an integrated closed ultrasonic scanner having a sealed housing which may be provided with an internal division or two chambers and containing an acoustically conductive liquid. A rotatable drum is disposed within the sealed housing and the front wall of the drum is oriented generally transversely to the longitudinal axis of the drum and rotatable therewith. A linear array of receiving transducers is secured to the front wal. A rear wall of the drum is oriented generally transversely to the longitudinal axis of the drum and rotatable wtherewith. A linear array of light emitting diodes is secured to the rear wall. Electric drive means are provided for rotating

AVAILABLE]

12. 5,447,432, Sep. 5, 1995, Custom orthodontic archwire forming method and apparatus; Craig A. Andreiko, et al., 433/24 [IMAGE AVAILABLE]

13. 5,431,562, Jul. 11, 1995, Method and apparatus for designing and forming a custom orthodontic appliance and for the straightening of teeth therewith; Craig A. Andreiko, et al., 433/24 [IMAGE AVAILABLE]

14. 5,368,478, Nov. 29, 1994, Method for forming jigs for custom placement of orthodontic appliances on teeth; Craig A. Andreiko, et al., 433/24, 3 [IMAGE AVAILABLE]

15. 5,347,286, Sep. 13, 1994, Automatic antenna pointing system based on global positioning system (GPS) attitude information; Daniel Babitch, 342/359, 352, 424; 343/725, 757 [IMAGE AVAILABLE]

16. 5,274,560, Dec. 28, 1993, Sensor free vehicle navigation system utilizing a voice input/output interface for routing a driver from his source point to his destination point; Charles LaRue, 701/202; 340/988; 704/246 [IMAGE AVAILABLE]

17. 5,243,888, Sep. 14, 1993, Pivoting carriage and saw; William P. Bowlin, 83/76.8, 75.5, 367, 368, 435.22, 731, 789, 810; 144/378 [IMAGE AVAILABLE]

18. 5,023,805, Jun. 11, 1991, Log scanner; Jan E. Aune, et al., 364/507; 378/51, 54, 58 [IMAGE AVAILABLE]

19. 5,016,643, May 21, 1991, Vascular entoptoscope; Raymond A. Applegate, et al., 600/558; 351/209, 221; 356/28, 39; 600/504 [IMAGE AVAILABLE]

20. 4,896,273, Jan. 23, 1990, Method and apparatus for selection of complex parts, including blades for band saws; Bill V. Moore, et al., 364/505; 83/789; 364/474.02, 474.21 [IMAGE AVAILABLE]

21. 4,879,659, Nov. 7, 1989, Log processing systems; William P. Bowlin, et al., 364/474.09; 144/357 [IMAGE AVAILABLE]

22. 4,858,980, Aug. 22, 1989, Article gripper; Robert C. Dreisig, et al., 294/99.1; 24/545; 248/316.7; 267/158, 160, 181 [IMAGE AVAILABLE]

23. 4,851,825, Jul. 25, 1989, Grayscale character generator and method; Abraham C. Naiman, 345/132, 138, 149, 471; 400/70; 707/528 [IMAGE AVAILABLE]

24. 4,794,775, Jan. 3, 1989, Method of producing a heat transfer tube for single-phase flow; Heikichi Kuwahara, et al., 72/78; 29/888.049, 890.048 [IMAGE AVAILABLE]

25. 4,792,914, Dec. 20, 1988, High frequency digital synthesizer with aperiodic correction optimizing the spectral purity; Luc Dartois, et al., 364/607; 327/107 [IMAGE AVAILABLE]

26. 4,728,958, Mar. 1, 1988, Coherent electromagnetic energy emitter locator; William C. Choate, 342/424, 156 [IMAGE AVAILABLE]

27. 4,691,751, Sep. 8, 1987, Method for sawing a tree trunk and for treating a uniformly thick slice of wood sawed off the trunk; Viljo S. Komulainen, 144/357, 1.1, 3.1, 378, 379, 399 [IMAGE AVAILABLE]

28. 4,690,211, Sep. 1, 1987, Heat transfer tube for single phase flow; Heikichi Kuwahara, et al., 165/177; 138/38; 165/184 [IMAGE AVAILABLE]

29. 4,638,456, Jan. 20, 1987, Spot quantitation; John G. Elias, et al., 382/133; 364/525, 570 [IMAGE AVAILABLE]

30. 4,628,459, Dec. 9, 1986, Computerized circuit arrangement for jig saw; Shigeru Shinohara, et al., 364/474.15; 30/393; 83/776; 364/189, 474.1, 474.23 [IMAGE AVAILABLE]

31. 4,618,937, Oct. 21, 1986, Spot quantitation; John G. Elias, et al., 345/432; 364/525, 570; 382/100 [IMAGE AVAILABLE]

32. 4,547,847, Oct. 15, 1985, Adaptive **control** for machine tools; Eugene A. Olig, et al., 364/148; 318/561; 364/164, 474.15, 474.17, 511 [IMAGE AVAILABLE]

33. 4,509,126, Apr. 2, 1985, Adaptive **control** for machine tools; Eugene A. Olig, et al., 364/474.15; 82/118; 318/561, 571; 364/148, 474.12, 474.17, 474.3, 511 [IMAGE AVAILABLE]

34. 4,218,683, Aug. 19, 1980, Range focus lens; Leland H. Hemming, 343/703; 342/4; 343/911R [IMAGE AVAILABLE]

35. 4,106,538, Aug. 15, 1978, Translatory feed of lumber workpieces from an orienting station through an edge trimming station; F.S. Meinrad Sigfridsson, et al., 144/376, 242.1, 245.2, 250.16; 198/617, 728 [IMAGE AVAILABLE]

36. 3,964,296, Jun. 22, 1976, Integrated ultrasonic scanning apparatus; Terrance Matzuk, 73/607, 610, 621, 625, 644 [IMAGE AVAILABLE]

37. 3,887,903, Jun. 3, 1975, Interactive man-machine method and system for grading pattern pieces and for producing an apparel marker; Charles Ronald Martell, 364/470.03, 222, 225, 226.7, 227.3, 234, 234.1, 234.2, 234.4, 235, 236, 237, 237.2, 237.3, 237.4, 237.7, 237.8, 238.3, 238.4, 244, 244.6, 246, 246.3, 248.1, 248.2, DIG.1 [IMAGE AVAILABLE]

38. 3,842,661, Oct. 22, 1974, SHOCK SPECTRUM ANALYSIS METHOD AND APPARATUS; Philip Marshall, et al., 73/576, 659, 664 [IMAGE AVAILABLE]

39. 3,733,555, May 15, 1973, SHOCK SPECTRUM ANALYZER AND SYNTHESIZER SYSTEM; Phillip Marshall, et al., 327/105, 407 [IMAGE AVAILABLE]

40. 3,659,456, May 2, 1972, SHOCK SPECTRUM ANALYSIS AND SYNTHESIS METHOD AND APPARATUS; Philip Marshall, et al., 73/659, 664 [IMAGE AVAILABLE]

41. 3,615,479, Oct. 26, 1971, AUTOMATIC FILM PROCESSING METHOD AND APPARATUS THEREFOR; Robert J. Kohler, et al., 430/30, 413, 434, 448 [IMAGE AVAILABLE]

=> d 12, 1-12, cit   c|s:364

1. 5,719,795, Feb. 17, 1998, Method to provide consistent estimated growth and yield values for loblolly pine plantations; Neal E. Menkus, et al., **364/578** [IMAGE AVAILABLE]

2. 5,487,172, Jan. 23, 1996, Transform processor system having reduced processing bandwith; Gilbert P. Hyatt, 395/800.32; **364/137, DIG.1, DIG.2** [IMAGE AVAILABLE]

3. 5,023,805, Jun. 11, 1991, **Log** scanner; Jan E. Aune, et al., **364/507**; 378/51, 54, 58 [IMAGE AVAILABLE]

4. 4,896,273, Jan. 23, 1990, Method and apparatus for selection of complex parts, including blades for band saws; Bill V. Moore, et al., **364/505**; 83/789; **364/474.02, 474.21** [IMAGE AVAILABLE]

5. 4,879,659, Nov. 7, 1989, **Log** processing systems; William P. Bowlin, et al., **364/474.09**; 144/357 [IMAGE AVAILABLE]

6. 4,792,914, Dec. 20, 1988, High frequency digital synthesizer with aperiodic correction optimizing the spectral purity; Luc Dartois, et al., **364/607**; 327/107 [IMAGE AVAILABLE]

7. 4,638,456, Jan. 20, 1987, Spot quantitation; John G. Elias, et al., 382/133; **364/525, 570** [IMAGE AVAILABLE]

8. 4,628,459, Dec. 9, 1986, Computerized circuit arrangement for jig **saw**; Shigeru Shinohara, et al., **364/474.15**; 30/393; 83/776; **364/189, 474.1, 474.23** [IMAGE AVAILABLE]

9. 4,618,937, Oct. 21, 1986, Spot quantitation; John G. Elias, et al., 345/432; **364/525, 570**; 382/100 [IMAGE AVAILABLE]

10. 4,547,847, Oct. 15, 1985, Adaptive **control** for machine tools; Eugene A. Olig, et al., **364/148**; 318/561; **364/164, 474.15, 474.17, 511** [IMAGE AVAILABLE]

11. 4,509,126, Apr. 2, 1985, Adaptive **control** for machine tools; Eugene A. Olig, et al., **364/474.15**; 82/118; 318/561, 571; **364/148, 474.12, 474.17, 474.3, 511** [IMAGE AVAILABLE]

12. 3,887,903, Jun. 3, 1975, Interactive man-machine method and system for grading pattern pieces and for producing an apparel marker; Charles Ronald Martell, **364/470.03, 222, 225, 226.7, 227.3, 234, 234.1, 234.2, 234.4, 235, 236, 237, 237.2, 237.3, 237.4, 237.7, 237.8, 238.3, 238.4, 244, 244.6, 246, 246.3, 248.1, 248.2, DIG.1** [IMAGE AVAILABLE]

=> d 12, 1-12, ab

US PAT NO: 5,719,795 [IMAGE AVAILABLE]   L2: 1 of 12

ABSTRACT:
The invention provides an easy-to-use method of containing consistent growth and yield values at varying levels of resolution (stand, size-class) for loblolly pine plantations in the southern United States. The invention is able to make projections of estimated values using either existing stand data, or predicted from bare-ground conditions. The invention evaluates stand performance based on estimates of potential or "target" productivity yields. The invention provides long-term expected yields for strategic planning, and short term projections for inventory purposes. The invention can function as a simulation tool to provide insights into the life-cycle of a stand under varying initial conditions. While most growth and yield models use an empirical, multiple regression, "best fits to the data" modelling methodology, the present invention is based upon a biomathematical modelling concept.

US PAT NO: 5,487,172 [IMAGE AVAILABLE]   L2: 2 of 12

ABSTRACT:
An improved transform processing system reduces processing bandwidth with improved processor architectures and improved transform algorithms. A hierarchal arrangement facilitates use of the same coefficients for multiple transforms, particularly when the coefficients have not changed. A detector arrangement is provided for detecting a change condition and then causing the processor to bypass redundant processing operations.

US PAT NO: 5,023,805 [IMAGE AVAILABLE]   L2: 3 of 12

ABSTRACT:
A method of analyzing a body (**log**) containing elements (e.g. knots) having different densities than the remainder of the body by passing electromagnetic energy from at least one source for substantially symmetrical bodies (pruned logs) or at least two sources through the body and sensing the amount of energy passing through the body from each source by sensors mounted opposite each source. Each sensor is formed by an array of discrete detectors positioned in side by side relationship opposite their respective sources. The amount of radiation passing through the body is detected as the body passes between the source(s) and its (their) respective detector(s) and a longitudinal plan is generated based on the radiation detected from each of the sensors over at least a preselected length of the body. For non-symmetrical bodies the longitudinal plans are then analyzed to identify the same element in each of the plans and then the body is reconstructed in a plurality of cross sections representing discrete lengths of the body shorter than the selected length with the detected elements positioned in the cross section.
A longitudinal axis of the body is selected based on the shape of the body and the plurality of the cross sections are collapsed along lines parallel to the selected longitudinal axis to provide an accumulation of the overlying elements along the axis in a single cross section representative of the length of body being collapsed. This system provides a means for a real time analysis of a body such as a **log** to determine the location of defects and generate a rotation decision for rotating the **log** for presentation to the headrig to permit the optimization of a sawing solution for the **log**. The system may also be used to determine a bucking solution to select the length of the **log** for which the sawing solution is determined.

US PAT NO: 4,896,273 [IMAGE AVAILABLE]   L2: 4 of 12

ABSTRACT:
A system is disclosed for selecting a band **saw** blade for a particular product to be cut on a selected band **saw**. Specifically, a schedule of predetermined parameters for operating most known types of band saws is entered into a microprocessor. The identity of the specific band **saw** and product to be cut it also entered. The microprocessor provides recommendations as to the optimum band **saw** blade for cutting the product. An additional feature of the invention is a system for providing a cost per-piece analysis of the product being cut, using both the present blade and the recommended blade. Further, a library of band **saw** problems and their recommend solution is provided. Finally, a product cross-reference schedule is provided in order to identify appropriate blades for a plurality of band **saw** brands.

US PAT NO: 4,879,659 [IMAGE AVAILABLE]   L2: 5 of 12

ABSTRACT:
A system for processing a **log** or **cant** including chippers, profiling heads, and saws arranged as a sequence of coupled operations. Scanners and computers determine the **log** configuration and projected configuration of lumber pieces to be derived. One scanning function is the determination of the wane area configuration in the region of the projected side board edges. This enables a determination of the side board edges including acceptacle wane area and the desired orientation (incline or decline) of the boards relative to the path of conveyance. The profiling heads are adjustable in response to computer calculations to edge the established side boards. Stabilizing is provided and includes guide anvils positioned at the board edges following the edging operation.

US PAT NO: 4,792,914 [IMAGE AVAILABLE]   L2: 6 of 12

ABSTRACT:
A high frequency digital synthesizer is provided with aperiodic correction optimizing the spectral plurity, including:
a generator of reference clock signals of frequency F_C,
a **computing** device, which, from a frequency increment of the signal to be synthesized, delivers, on the one hand, uncorrected pulses of frequency F_{Sj} shifted in the time with respect to the signal of frequency F_S to be synthesized by an amount Δt at most equal to $1/F$ and, on the other hand, a time error signal corresponding to the shift Δt and a correction circuit which is initiated by each of the frequency pulses F_{Sj} for delaying the signal F_{Sj} by a maximum time when the time error signal is zero by an amount equal to the maximum time reduced by the shift Δt indicated by the time error signal.

US PAT NO: 4,638,456 [IMAGE AVAILABLE]

ABSTRACT:
Describes a method and system for improving the ability to quantitate the amount of flux or material in localized collections of such flux or material typically called a "spot". Quantitation of spots using a software algorithm which utilizes reduction volumes for quantitating peaks in a spot image of an electrophoresis gel is disclosed. The operating system includes a laser gel scanner module, a computer module, system peripherals, and analysis software.

US PAT NO: 4,628,459 [IMAGE AVAILABLE]

ABSTRACT:
A circuit arrangement including a computer is built in an electrical jig **saw** where various data or information, such as the sort of the material of the **workpiece**, the thickness of the **workpiece**, desired degree of finish and way of cutting, are manually inputted via a keyboard so that the computer selects and determines optimum working condition, such as the sort of blade to be used, the locus of the blade, blade strokes per minute which is in proportion to the motor speed, and the necessity of application of coolant oil. The circuit arrangement also comprises circuitry for automatically **controlling** the rotational speed of the motor of the jig **saw** so that an actual speed of the blade equals a desired speed represented by strokes per minute. A display unit is coupled with the computer for indicating input and output data of the computer for supplying visual information to the user of the jig **saw**.

US PAT NO: 4,618,937 [IMAGE AVAILABLE]

ABSTRACT:
Describes a method and system for improving the ability to quantitate the amount of flux or material in localized collections of such flux or material typically called a "spot". Quantitation of spots using a software algorithm which utilizes models in two opposite senses for quantitating peaks in a spot image of an electrophoresis gel is disclosed. The operating system includes a laser gel scanner module, a computer module, system peripherals, and analysis software.

US PAT NO: 4,547,847 [IMAGE AVAILABLE]

ABSTRACT:
An adaptive **control** for a turning machine which adjusts the machining rate to maintain the actual horsepower dissipated at the cutter tip at a constant set point despite changing **workpiece** and cutter parameters. The machining rate is adjusted by **control** of the machine drive and tool feed to achieve required SFM and IPR values, respectively, within maximum and minimum SFM and IPR limits. "Speed" and "Axis" override **controls** are also provided. The rate of adjustment of SFM and IPR to

a deviation of the cutter tip horsepower from the set point is inversely proportional to the measured system gain so that the response factor of the **control** loop is maximized. The commanded machining rate of (SFM) (IPR) product is periodically determined by estimating the actual machining rate and multiplying the estimate by the ratio of the set point to the cutter tip horsepower. The cutter tip horsepower is determined by subtracting the electrical loss, mechanical friction loss, and the net power required for net acceleration of the drive, from the measured electrical power supplied to the drive motor. The cutting efficiency is monitored to perform tool wear, tool breakage, and tool protection functions. The adaptive **control** also has soft engagement and soft disengagement functions for initiating and terminating the adaptive machining process.

US PAT NO: 4,509,126 [IMAGE AVAILABLE]   L2: 11 of 12

ABSTRACT:
An adaptive **control** for a turning machine which adjusts the machining rate to maintain the actual horsepower dissipated at the cutter tip at a constant set point despite changing **workpiece** and cutter parameters. The machining rate is adjusted by **control** of the machine drive and tool feed to achieve required SFM and IPR values, respectively, within maximum and minimum SFM and IPR limits. "Speed" and "Axis" override **controls** are also provided. The rate of adjustment of SFM and IPR to a deviation of the cutter tip horsepower from the set point is inversely proportional to the measured system gain so that the response factor of the **control** loop is maximized. The cutter tip horsepower is determined by subtracting the electrical loss, mechanical friction loss, and the net power required for net acceleration of the drive, from the measured electrical power supplied to the drive motor. The cutting efficiency is monitored to perform tool wear, tool breakage, and tool protection functions. The adaptive **control** also has soft engagement and soft disengagement functions for initiating and terminating the adaptive machining process.

US PAT NO: 3,887,903 [IMAGE AVAILABLE]   L2: 12 of 12

ABSTRACT:
The specification discloses a technique for laying out an apparel pattern marker by efficiently arranging a plurality of apparel pattern pieces within a predetermined marker area. The system includes a digitizer for inputting digital coordinate data representative of a plurality of apparel pattern pieces. A central **controller** receives and stores the coordinate data and upon command, applies predetermined grading rules to the pattern pieces. The graded pattern pieces may be displayed upon a cathode ray tube display and checked by the operator. To produce a pattern marker, the operator faces the cathode ray tube display on which is displayed miniature representations of the marker area and the pieces comprising the desired style and sizes. The operator manually operates a stylus on a data tablet which is interconnected with the central **controller** and the cathode ray tube display. The operator further operates a multi-button function box in conjunction with movement of the stylus, in order to arrange the piece reproductions within the marker area on the cathode ray tube. When the desired miniature marker layout has been produced on the cathode ray tube display, the operator may cause the full sized apparel pattern marker to be automatically plotted. The pattern marker may then be utilized to cut cloth to enable the fabrication of a large number of garments of the desired style and sizes.

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1. 5,615,003, Mar. 25, 1997, Electromagnetic profile scanner; Alexander T. Hermary, et al., 356/3.03; **250/559.23**; 356/376; 382/106 [IMAGE AVAILABLE]

US PAT NO: 5,615,003 [IMAGE AVAILABLE]   L3: 1 of 1

ABSTRACT:
A system for determining the shape and dimensions of a surface of an
object includes a projector for projecting onto the object a spatially
coded pattern of radiation, e.g., light. The system also includes a
receiving device capable of imaging the reflected pattern, and a
discriminator for determining which portion of the reflected pattern
corresponds to which portion of the projected pattern. By this means, a
received signal representing less than the complete reflection from the
projected pattern can be correlated with a discrete portion of the
scanned object. The procedure is repeated to obtain enough reliable data
to generate a reasonably reliable surface profile. The resulting set of
received signals and correlations are used to calculate the shape and
dimensions of the object.

=> d 14, 1-5, cit   C L : 144

1. 5,722,474, Mar. 3, 1998, Method and apparatus for cutting a **cant**
into boards; Christopher Raybon, et al., **144/357**; 83/368;
144/3.1, 39, 250.23, 378 [IMAGE AVAILABLE]

2. 5,243,888, Sep. 14, 1993, Pivoting carriage and **saw**; William P.
Bowlin, 83/76.8, 75.5, 367, 368, 435.22, 731, 789, 810; **144/378**
[IMAGE AVAILABLE]

3. 4,879,659, Nov. 7, 1989, **Log** processing systems; William P.
Bowlin, et al., 364/474.09; **144/357** [IMAGE AVAILABLE]

4. 4,691,751, Sep. 8, 1987, Method for sawing a tree trunk and for
treating a uniformly thick slice of wood sawed off the trunk; Viljo S.
Komulainen, **144/357, 1.1, 3.1, 378, 379, 399**
[IMAGE AVAILABLE]

5. 4,106,538, Aug. 15, 1978, Translatory feed of lumber workpieces from
an orienting station through an edge trimming station; F.S. Meinrad
Sigfridsson, et al., **144/376, 242.1, 245.2, 250.16;**
198/617, 728 [IMAGE AVAILABLE]

=> d 14, 1-5, ab

US PAT NO: 5,722,474 [IMAGE AVAILABLE]   L4: 1 of 5

ABSTRACT:
Apparatus for detecting dimensional information of a **workpiece** such
as a canted **log** is used to **control** a gang **saw** mounted on a
pivot axis to cut the **log** into substantially even thickness boards
while moving the **log** past the cutting device and pivoting the gang
saw to accommodate curvature in the **log**.

US PAT NO: 5,243,888 [IMAGE AVAILABLE]   L4: 2 of 5

ABSTRACT:
A pivoting carriage and **saw** which is characterized in a preferred
embodiment by a carriage capable of receiving **curved** logs and
pivotally mounted on a linear-operated trolley for engaging the logs with
a pivoting band **saw** and cutting a selected non-linear path through
the **curved** logs. In a most preferred embodiment the band **saw** is
pivotally mounted adjacent to the trolley carriage and **log** and a

computerized **control** system is coupled to fluid-operated cylinders
mounted on **log**-adjusting knees on the carriage and on other
fluid-operated cylinders provided on the carriage itself and on the band
saw and used to select and **control** desired cutting paths through
the logs.

ABSTRACT:
A system for processing a **log** or **cant** including chippers,
profiling heads, and saws arranged as a sequence of coupled operations.
Scanners and computers determine the **log** configuration and projected
configuration of lumber pieces to be derived. One scanning function is
the determination of the wane area configuration in the region of the
projected side board edges. This enables a determination of the side
board edges including acceptacle wane area and the desired orientation
(incline or decline) of the boards relative to the path of conveyance.
The profiling heads are adjustable in response to computer calculations
to edge the established side boards. Stabilizing is provided and includes
guide anvils positioned at the board edges following the edging
operation.

ABSTRACT:
The present invention relates to a method for sawing a tree trunk and for
treating a slice of wood of uniform thickness sawn off the trunk. In the
first method, the trunk dimensions and shape as well as the biological
quality of each section of the trunk both in the lengthwise and the
crosswise direction are defined along with the sawing process, and this
information is taken into account while treating the trunk. This method
is characterized in that the production programme, which comprises
various articles, i.e. product components, of different measures and
qualities, is recorded (a) before the actual sawing process. The trunk is
sawn into two halves in the middle (b), or the heart slice is removed
therefrom (i). The longitudinal quality borders of each trunk half are
defined on the basis of the sawn face and recorded (c), and further the
shape and size of the trunk half are measured and recorded (d). The
quality information and the measuring results are combined (e). The
cross-cutting lines and the sawing patterns of the trunk halves are
optimized on the basis of the measuring results and the quality
information so that each trunk half is divided, in the lengthwise
direction, into sections, each section in principle belonging to the same
quality grade, and that into each section there are fitted suitable
product components from the production programme and the value yield is
maximized (f), whereafter the trunk halves are cross-cut and slices of
desired sized are sawn off the halves, which slices are further sawn into
suitable product components (g) and sorted out (1).

ABSTRACT:
Strictly translatory substantially lengthwise horizontal motion is
imparted to an elongated **workpiece** such as a **cant** having top and
bottom face surfaces, at least one of which is flat, to feed the
workpiece from an orienting station towards a trimming station at
which straight, parallel longitudinal side surfaces are formed on the
workpiece that are perpendicular to said flat face surface. For such
translatory motion, driving dogs engage one face surface at
longitudinally spaced portions of a narrow zone thereof which is spaced
substantially equal distances from its longitudinal edges; the driving
dogs are confined to linear motion in the feed direction; and the other
face surface is engaged by horizontal freely revolving rollers extending
transversely to the feed direction at intervals therealong. At the
orienting station the oriented **workpiece** is clampwise engaged by the

rollers and dogs by effecting relative vertically converging motion
between them.

=> d 18, 1, cit

1.   5,722,474, Mar. 3, 1998, Method and apparatus for cutting a **cant**
into boards; Christopher Raybon, et al., 144/357; 83/368; 144/3.1, 39,
250.23, 378 [IMAGE AVAILABLE]

=> d 18, 1, ab

US PAT NO: 5,722,474 [IMAGE AVAILABLE]   L8: 1 of 1

ABSTRACT:
Apparatus for detecting dimensional information of a **workpiece** such
as a canted **log** is used to **control** a **gang saw** mounted on
a pivot axis to cut the **log** into substantially even thickness boards
while moving the **log** past the cutting device and pivoting the
gang saw to accommodate curvature in the **log**.

=> d 19, 1-3, cit

1.   5,243,888, Sep. 14, 1993, Pivoting carriage and **saw**; William P.
Bowlin, 83/76.8, 75.5, 367, 368, 435.22, 731, 789, 810; 144/378 [IMAGE
AVAILABLE]

2.   4,896,273, Jan. 23, 1990, Method and apparatus for selection of
complex parts, including blades for band saws; Bill V. Moore, et al.,
364/505; 83/789; 364/474.02, 474.21 [IMAGE AVAILABLE]

3.   4,879,659, Nov. 7, 1989, **Log** processing systems; William P.
Bowlin, et al., 364/474.09; 144/357 [IMAGE AVAILABLE]

=> d 19, 1-3, ab

US PAT NO: 5,243,888 [IMAGE AVAILABLE]   L9: 1 of 3

ABSTRACT:
A pivoting carriage and **saw** which is characterized in a preferred
embodiment by a carriage capable of receiving **curved** logs and
pivotally mounted on a linear-operated trolley for engaging the logs with
a pivoting **band saw** and cutting a selected non-linear path
through the **curved** logs. In a most preferred embodiment the **band
saw** is pivotally mounted adjacent to the trolley carriage and **log**
and a computerized **control** system is coupled to fluid-operated
cylinders mounted on **log**-adjusting knees on the carriage and on other
fluid-operated cylinders provided on the carriage itself and on the
band saw and used to select and **control** desired cutting paths
through the logs.

US PAT NO: 4,896,273 [IMAGE AVAILABLE]   L9: 2 of 3

ABSTRACT:
A system is disclosed for selecting a **band saw** blade for a
particular product to be cut on a selected **band saw**.
Specifically, a schedule of predetermined parameters for operating most
known types of band saws is entered into a microprocessor. The identity
of the specific **band saw** and product to be cut it also entered.
The microprocessor provides recommendations as to the optimum **band
saw** blade for cutting the product. An additional feature of the
invention is a system for providing a cost per-piece analysis of the

product being cut, using both the present blade and the recommended
blade. Further, a library of **band saw** problems and their
recommend solution is provided. Finally, a product cross-reference
schedule is provided in order to identify appropriate blades for a
plurality of **band saw** brands.

US PAT NO: 4,879,659 [IMAGE AVAILABLE]   L9: 3 of 3

ABSTRACT:
A system for processing a **log** or **cant** including chippers,
profiling heads, and saws arranged as a sequence of coupled operations.
Scanners and computers determine the **log** configuration and projected
configuration of lumber pieces to be derived. One scanning function is
the determination of the wane area configuration in the region of the
projected side board edges. This enables a determination of the side
board edges including acceptacle wane area and the desired orientation
(incline or decline) of the boards relative to the path of conveyance.
The profiling heads are adjustable in response to computer calculations
to edge the established side boards. Stabilizing is provided and includes
guide anvils positioned at the board edges following the edging
operation.